REMARKS/ARGUMENTS:

The non-final Office Action dated January 8, 2007, rejected all claims then pending. This after final amendment adds the subject matter of canceled claims 43-44 to independent method claim 41, adds the subject matter of canceled claims 51-52 to independent device claim 49, adds the subject matter of canceled claims 59-60 to independent program claim 57. Spelling of "Kullback-Leibler" is corrected to match that at page 13 line 17. No new matter is added, and entry of this amendment is requested for two reasons: it is seen to put the claims in condition for allowance, and entry would require no additional search or examination as only previously-examined subject matter is presented.

Interview Summary:

The undersigned and the Examiner engaged in a teleconference on 12 March 2007, during which was discussed method claims 41, 43 and 44 with respect to the reference to Falzon (US 2003/0210824). The undersigned noted that Falzon was cited and relied upon in an office action dated January 5, 2005 for rejecting claims reciting a Kullback-Leibler distance. The Applicant's amendment dated April 5, 2005 addressed Falzon on the substance and Falzon was not again cited until the final office action dated January 8, 2007. The distinction then argued was presented again, and the Examiner indicated he would review Falzon again but that some amendment would be necessary regardless since Kullback-Leibler distance is not recited in independent claim 41. The Applicants disagree with the characterization in the Examiner's Interview Summary dated March 13, 2007 that "Falzon discloses minimization of the distance ensures a minimization of the cost of coding." As detailed below, Falzon is seen to be directed to spreading a rate allocation across sub-bands of an image/data to be compressed.

Remarks:

The Applicants submitted the following argument in an Amendment dated April 5, 2005 concerning Falzon:

> Falzon is directed to data compression using orthogonal or bi-orthogonal base functions such as wavelets. Falzon uses a Kullback-Leibler (KL) distance to estimate the parameters of a generalized Gaussian distribution, which in turn is used as a probability density model of the sub-bands. However, claims 11, 14-15, and 31 do not recite that the KL distance is a distance metric between distributions; they recite that a maximized minimum KL distance separates certain points of a signal constellation. The KL distance of those claims is

> used in the design of the signal constellation, so the distance between points of adjacent subsets in the embodied constellation that was so designed inherently reflects a KL distance. Falzon is not seen to use KL distance between constellation points.

After the amendment is which the above argument was presented, Falzon was not cited again until the final office action dated January 8, 2007.

In a related application ser. no. 10/607,406, the allowed independent claims recite "two constellation points defining a minimum separation distance from one another by a distance D based on a maximized minimum difference between conditional probability distributions", and recites a specific formula for D. Equations (24) and (25) of that application show that a Kullback-Leibler distance is a special case of the claimed formula for D. Falzon was made of record in that related application by an IDS dated January 25, 2005.

So in both the current application and the related application above it was concluded that Falzon does not teach or suggest using a Kullback-Leibler distance to separate points of a signal constellation.

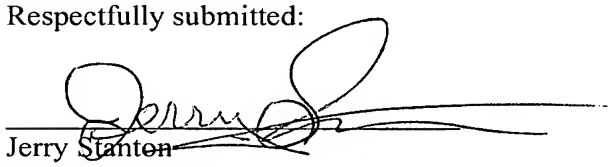
As can be seen in Falzon's summary at paras [0015] through [0021], the Kullback-Leibler distance is used for each sub-band of the image/data to constrain estimates of parameters of a Gaussian distribution (by minimizing a distance between a generalized Gaussian distribution for which parameters are estimated and an empirical distribution of coefficients of wavelets transformed from the original image/data). Falzon relates to optimal rates used to transform an image or data (para [0003]) and thereby compress it. The transform takes bits from subbands of the image/data and converts them to wavelets [0005-0006]. Bits of the image/data to be compressed are projected onto wavelets [0017]; a set rate R is chosen based on the total number of bits needed to code for all coefficients of that transformed image (all of the wavelets) [0018]; that total number (of bits) is then deemed to be the rate allocation for the coefficients, and it is the coefficients rather than the bits that are to be quantized [0019]; a Gaussian density model is fitted to a sub-band of the coefficients [0020] and [0007], and a Kullback-Leibler distance is used as a constraint in estimating the parameters of this

Gaussian density model by keeping it close to the empirical distribution of the wavelets sub-band by sub-band [0021].

Falzon's Kullback-Leibler distance is not seen to be related to separation of points of a signal constellation; it is used to find parameters of a Gaussian distribution of wavelets so that a coding rate R is distributed across the sub-bands of the total image/data while minimizing distortion. This is how Falzon 'allocates the bit rate' [0003]. That the bit rate might be imposed externally by a transmission channel [0013] does not make Falzon's Kullback-Leibler distance relevant to the design of a signal constellation. Falzon's compressed data may be fit to a signal constellation prior to transmission, but Falzon concerns the compression of data that does not change based on any specific signal constellation to which it might be mapped. Falzon is directed toward minimizing distortion in the compression of data when there is a rate constraint, and is not seen as relevant to the design of a signal constellation. It is the design of a signal constellation that sets the distribution and disposition of points relative to one another.

Entry of this Amendment and allowance of claims 41-42, 45-50, and 53-58 is respectfully requested. The undersigned welcomes the opportunity to resolve any matters that may remain via teleconference, where appropriate.

Respectfully submitted:



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